

What is claimed is:

1. A battery comprising:

- (1) a cylindrical shaped external case having a projection jutting from its inner surface;
- 5 (2) an electrode assembly inserted into the external case; and
- (3) a lead plate, which is connected to the electrode assembly, and which is connected to the projection jutting from the inner surface of the external case by an energy beam applied to the external case from outside the external case.

10

2. A battery as recited in claim 1 wherein the external case is a circular cylindrical shape, and a projection is provided at the center of the bottom plate of the external case.

15

3. A battery as recited in claim 2 wherein a spiral shaped electrode assembly is inserted into the circular cylindrical shaped external case.

20

4. A battery as recited in claim 1 wherein a projection for connection to the lead plate is provided on a side-wall of the external case.

5. A battery as recited in claim 1 wherein the shape of the external case is a rectangular cylinder, an elliptical cylinder, or a cylinder shape between rectangular and elliptical (super-elliptical).

25

6. A battery as recited in claim 5 wherein a spiral shaped electrode assembly is pressed from both sides to deform it into an ellipse and inserted into an elliptical external case.

30

7. A battery as recited in claim 5 wherein an electrode assembly, formed by cutting a plurality of positive electrode plate and negative electrode plate

sheets and stacking them with separator in between, is inserted into a rectangular cylindrical external case.

8. A battery as recited in claim 1 wherein the protruding surface of the
5 projection provided on the external case is curved around the central
protrusion.

9. A battery as recited in claim 1 wherein the protruding surface of the
projection provided on the external case juts out in a conical shape.

10 10. A battery as recited in claim 1 wherein a flexible deforming piece is formed
on the lead plate as a result of a U-shaped cut-out around the flexible
deforming piece, and the flexible deforming piece is weld attached to the
projection on the external case.

15 11. A battery as recited in claim 10 wherein the flexible deforming piece
projects outward towards the projection on the external case.

20 12. A battery as recited in claim 10 wherein the external case is circular
cylindrical shaped, the lead plate is cut from metal plate in a disk shape smaller
than the inside of the external case, and the flexible deforming piece is
disposed at the approximate center of the lead plate.

25 13. A battery as recited in claim 12 wherein the lead plate has holes with
projections around the peripheries of the holes, and the projections are
connected to the electrode assembly.

14. A battery as recited in claim 1 wherein anti-corrosive coating is applied to
the region of energy beam application outside the external case.

15. A battery as recited in claim 14 wherein the anti-corrosive coating is conductive.

Add A¹⁸
and C¹⁹